Primary - Science

Groveside School

	Autumn		Spring		Summer	
	MYSELF		RELATIONSHIPS		STAYING SAFE	
	1st Half Term	*2nd Half Term*	*1st Half Term*	*2nd Half Term*	*1st Half Term*	*2nd Half Term*
Year 3	**Animals: Movement and Nutrition** Studying the human skeleton, children identify key bones and explore how muscle changes result in movement. They learn about how the body uses energy, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise. • Skeletons Lesson • The bones in our body Muscles and movement • Eating for survival • Nutrient groups Balanced diets	**Forces and space: Fores and Magnets** Lesson By investigating motion on different surfaces, children learn about friction and compare its uses and disadvantages. They broaden their experience in working scientifically as they investigate contact and non-contact forces. Pupils explore the properties of different magnets and apply this to understand their uses. • Pushes, pulls and twists Friction • Investigating friction Magnets • Investigating magnet strength • Uses of magnets	**Materials: Rocks and soil** Observing the appearance and physical properties of rocks, children compare and group different rock samples. They learn about how fossils and soils are formed and record soil drainage rates in a bar chart. • Rocks: Appearance Rocks: Physical properties • Fossil formation • Fossils and palaeontology • Soil formation • Soil layers and earthworms	**Energy: Light and shadows** Identifying examples of light sources, children learn that light is needed to see and how its absence causes darkness. Children investigate reflection and shadow formation and explore how shadows can be used to entertain in the arts, creating shadow puppets to recount how different people work or experiment with light. • Sources of light • What is reflection? Where do shadows come from? • Shadows throughout the day • Investigating shadows Using light and shadows	**Plants: Plant reproduction** Explaining how plants reproduce in the context of the life cycle of a flowering plant, gathering data on plant growth and investigating the structure and function of the parts of a flowering plant. • Plant growth • Structure and function Transporting water Flowers • Evaluating an enquiry • Seed dispersal	**Making connections: Does hand span affect grip strength?** Exploring the relationship between hand span and grip strength through scientific enquiry. They apply their understanding of friction to make predictions and plan and carry out an enquiry. **Investigating grip strength:** • Planning • Gathering data • Analysing • Concluding • evaluating • Extending • Presenting

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Year 4	**Animals: Digestion and food** Using models, children describe the function of key organs in the digestive system. Pupils identify the types of human teeth and investigate factors that impact our dental health. They compare human teeth to other animals' and take on the role of a naturalist investigating animal faeces for clues about diet, digestion and dentition. • The human digestive • system • Human teeth • Investigating dental • hygiene • Teeth of carnivores, • herbivores and • omnivores • Producers, • predators and • prey in food • chains	**Energy: Electricity and circuits** Exploring appliances in their setting that use electricity, children learn how to work with electricity safely and build circuits. Pupils investigate electrical conductors and insulators and explore the relationship between the number of cells and bulb brightness. Real scenarios and historical discoveries inform children about scientific progression and home safety. • Using electricity • Building circuits Switching on and off Investigating electrical conductors and insulators • Investigating bulb brightness • Electrical safety	**Materials States of matter** By investigating the properties of solids, liquids and gases, children learn about the different states of matter. They explore changes of state using relatable examples and use this to explain changes to water through the water cycle. Pupils investigate the relationship between temperature and rate of evaporation while broadening their experience of working scientifically. • Solids • gases • Melting and freezing • Condensing and evaporating • The water cycle • Climate change and the water cycle	**Energy: Sound and vibrations** Exploring different ways of producing sounds, children learn about the relationship between vibrations and what they hear. Pupils explore how pitch and volume can be altered and how sound can be insulated using different materials. • Vibrations • Sound waves Volume • Volume and distance • Pitch • Sound insulation	**Animals: Classification and changing habitats** Children explore different ways living things can be grouped and make classification keys. They study ways that habitats may change over time and understand that humans can have both positive and negative effects on their surroundings. • Vertebrates and Invertebrates • Grouping living things: Plants • Classification keys • Habitats and seasonal change • Human impacts on habitats • Natural changes to habitats	**Making connections: How does the flow of liquids compare?** The children explore the relationship between viscosity and the flow of liquids through experiments, data analysis and drawing conclusions. They apply their understanding of states of matter to make predictions and plan and carry out an enquiry. **Investigating liquids:** • Planning • Gathering data • Analysing • concluding • evaluating • Extending • Presenting

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Year 5	**Materials: Mixtures and separation** Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions. • Mixtures Sieving • Filtering • Solutions • Dissolving • Evaporating	**Materials; Properties and changes** Broadening their experience of the properties of materials, children investigate hardness, transparency and conductivity and consider how these properties influence the uses of materials. They explore reversible changes, including dissolving and changes of state. Children compare these to irreversible changes, including rusting, burning and mixing vinegar and bicarbonate of soda. • Hardness • Transparency • Conductivity • Reversible changes • Irreversible changes: Burning and rusting • Irreversible changes: Mixing	**Forces and space: Earth and Space** Children explore the movement of the celestial bodies in our Solar System, including the Earth and other planets and the Moon. They discover how the rotation of the Earth causes night and day and how sundials work. Pupils find out about the uses of satellites and the problem with space junk. • Models of our Solar System • Our Solar System • The Moon • Day and night • Time • Satellites and space junk	**Living thing and their habitats Life cycles and reproduction** Comparing the life cycles of plants, mammals, birds, amphibians and insects. Investigating asexual reproduction in plants and comparing sexual and asexual reproduction. • Life cycles and reproduction in plants • Life cycle of a mammal Life cycle of a bird • Life cycle of an amphibian • Life cycle of an insect • Asexual reproduction in plants	**Forces and space: Unbalanced forces** Building on their knowledge of contact and non-contact forces, children explore gravity, friction, air resistance and water resistance in more depth and consider the effect of these forces being unbalanced. They plan investigations to further their understanding of the effects of these forces. • Gravity • Air resistance • Water resistance Friction • Levers, pulleys and gears	**Making connections: Does the size of an asteroid affect the diameter of its impact crater?** Children explore the relationship between the size of model asteroids and the diameter of the impact crater they create through experiments, data analysis, and drawing conclusions. **Investigating asteroid craters** • Planning • Gathering data • Analysing • concluding • evaluating • Extending • Presenting

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Year 6	**Animals: Classifying big & small** Children broaden their knowledge of how vertebrates, invertebrates, plants and micro-organisms are grouped using shared characteristics. They discover how Carl Linnaeus developed the Linnaean and binomial systems for classifying and naming living things. Pupils use and produce branching and number classification keys to sort and identify organisms. • Carl Linnaeus and classification • Coldblooded vertebrates • Warm blooded vertebrates • Invertebrates Plants • Microorganism	**Energy Light and reflection** Proving that light travels in a straight line, children use this information to explain observations of reflection and shadows. Pupils investigate the effect of moving an object away from the surface it casts a shadow on and the relationship between the incoming and reflected rays on a mirrored surface. Exploring real uses of mirrors allow children to apply what they have learned about light throughout the unit. • The pathway of light • Measuring shadows Reflecting light • Making a periscope Using mirrors	**Living things: Evolution and Inheritance** Studying patterns in humans and other species, children learn about characteristics that are inherited and those that are environmental. Through the eyes of Darwin and Wallace, pupils understand how observations lead to theories. They begin to explain how species evolve and the role of fossil evidence that supports this theory. • Variation • Inheritance • Adaptations • Modelling natural selection • Evolution • Evidence for evolution	**Circuits, batteries and switches** Revisiting electrical circuits, children learn to draw conventional circuit diagrams and use models to explain current, resistance and voltage. They compare different batteries and relate this to the effects on bulb brightness. Pupils apply their knowledge of switches and electrical circuits to design and produce their own practical devices. • Components and circuits • Circuit diagrams • Current and resistance Batteries and voltage • Voltage and bulb brightness • Practical circuits	**Animals: Factors affecting health** Studying the human circulatory system, children learn about the role of the heart, blood and blood vessels and use models to demonstrate their function. They explore how lifestyle choices affect our health and use secondary sources to advise patients. • The heart and circulatory system • Blood • Heart rate • Investigating exercise and heart rate • Heart rate and fitness	**Making connections: Are some sunglasses safer than others?** Exploring sun safety, children investigate the efficacy of different sunglasses. They devise enquiries to test light and UV transmission of the lenses to form a conclusion about which sunglasses are best. The children summarise their findings through presentations and advertisements. **Investigating sunglasses** • Planning • Gathering data • Analysing • concluding • evaluating • Extending • Presenting